

Optics Quiz 2 Review

Key Terms:

refraction	refracted ray	angle of refraction	index of refraction
partial reflection and refraction		critical angle	total internal reflection
rainbow	apparent depth	shimmering	mirage

Temperature Inversion

Apart from the key terms above, you should know the following from chapter 11

From Chapter 11.1

- know what refraction is
- know how the speed of light in a medium causes it to bend (including which way it bends)
- know Fermat's Principle
- know how to use the index of refraction

From Chapter 11.2

- know what is different about light going from a slow medium to a fast medium
- know how to calculate the critical angle
- know how to describe total internal reflection and when it occurs
- know the uses discussed in this section about internal reflection

From Chapter 11.3

- know how a rainbow is produced (be able to draw the diagram)
- know how apparent depth influences what we see
- know how changes in the temperature of water results in shimmering, mirages and temperature inversions

Equations:

index of refraction:

$$n = \frac{c}{v} \quad c = 3.0 \times 10^8 \text{ m/s}$$

Snell's Law for critical angle:

$$\theta_c = \sin^{-1} \frac{n_2}{n_1} \quad n_2 \text{ is the index of refraction for the second medium, } n_1 \text{ is from the starting medium}$$

Recommended Questions:

pg 482- 483 # 1, 3-6, 8, 9, 11, 12, 16-19, 23, 25